

REMARKS

As a preliminary matter, Applicants thank the Examiner for the continued acknowledgment of allowable subject matter in claims 12 and 14.

As a second preliminary matter, Applicants thank the Examiner for the courtesy shown to Applicants' representative, Josh C. Snider, in the telephone interview conducted with the Examiner on September 23, 2005. Claims 11 and 13 of the present invention were discussed, and particularly with reference to the cited Kawakami reference. Applicants' representative pointed out to the Examiner that the Examiner's continued reliance on Fig. 9 of Kawakami for teaching or suggesting the three distinct time periods in one frame time in the present invention, when Fig. 9 does not show any timing features at all. The Examiner did not assert in the interview any further reliance on Fig. 9. Instead, the Examiner only asserted that Fig. 18 of Kawakami (which has never been mentioned by the Examiner in any Office Action) shows three distinct "time periods."

Applicants acknowledge that the OFF, ON, and CLEAR periods shown in Fig. 18 are all timing periods, however, Applicants' representative demonstrated to the Examiner in detail how these three periods are not analogous to the data writing period, the data erasing period, and the period of neither data writing nor erasing of the present invention, and more particularly, how Fig. 18 does not show all three periods within one frame time, as is clearly defined by the present Specification, and as is also known in the art. Agreement was not reached as to the teachings of Fig. 18, and the Examiner requested that Applicants submit these same arguments from the Interview in a formal written response (see further below).

Because the Examiner has merely repeated the previous rejection of claims 11 and 13 (under Section 103 based on a combination of the previously cited Kawakami and Mayazawa references), Applicants maintain and incorporate by reference herein those arguments previously advanced on pages 2 through 6 of Response C, filed March 31, 2005. Applicants therefore respectfully request that the Examiner reconsider those arguments, and withdraw the outstanding Section 103 rejection of claims 11 and 13. Additionally, in light of the Examiner's remarks in the Telephone Interview and the outstanding Office Action, Applicants respectfully request that the Examiner consider the following additional arguments and expansions upon the previous arguments.

With respect to the Office Action, the Examiner appears, on page 3 of the outstanding Office Action, to have misinterpreted Fig. 9 of the Kawakami reference. Fig. 9 of Kawakami does not illustrate a wave form driven in different time periods, as asserted by the Examiner. Fig. 9 is not in any way a timing diagram like the preceding Figs. 7 and 8. Fig. 9 is, in fact, only a bar graph representation of the voltage applied to the crossing points of the X-line and Y-line electrodes shown in Fig. 3. (See also col. 3, line 57 through col. 4, line 10). The Examiner incorrectly refers to these crossing points as “*state periods*.” (Emphasis added). Kawakami, however, never teaches that the states shown in Fig. 3 and Fig. 9 relate to timing periods of wave forms. As explained to the Examiner above and previously, Kawakami’s “states” only refer to whether one, both, or none of the X-line and Y-line electrodes have an applied voltage at the particular crossing point.

Applicants again emphasize to the Examiner that the Kawakami reference never teaches one single frame time period that includes all three subperiods recited in independent claims 11 and 13 of the present invention. The Examiner has never cited on the record any teaching or suggestion within the Kawakami reference that features all of these elements of the present invention. Again, it appears that the Examiner has primarily arrived at the conclusion that Kawakami teaches these features by misinterpreting Fig. 9 of the reference to be a timing diagram, similar to its preceding Figs. 7 and 8. In light of this clear error by the Examiner in interpreting the Kawakami reference, Applicants once again respectfully request that the withdrawal of the outstanding Section 103 rejection of claims 11 and 13.

With respect to the Examiner's reliance on Fig. 18, as expressed for the first time only in the Telephone Interview, Applicants again submit that this reliance is also misplaced. Kawakami does not teach or suggest that the OFF, ON, and CLEAR periods shown in Fig. 18 correspond to a data writing period, a data erasing period, and a period where neither data writing nor data erasing is performed. Furthermore, Kawakami does not teach or suggest that all three of the periods shown in Fig. 18 are all executed within one frame time, which the Examiner acknowledged in the interview to correspond to the frame period between successive scans of a pixel element. According to this very acknowledgment by the Examiner, Fig. 18 cannot read upon the present invention.

It is important to note that the Examiner initially asserted in the Interview that Kawakami's ON period corresponded to the data writing process of the present invention, the

OFF period corresponded to the data erasing period of the present invention, and the CLEAR period corresponded to the period of the present invention in which neither data writing nor erasing is performed. However, when it was pointed out to the Examiner that col. 11, line 56 of Kawakami specifically teaches that the clear period is also part of the erasing operation, the Examiner then contradicted his initial position by alternatively asserting that Kawakami's OFF period must be analogous to the period of the present invention in which neither data writing nor erasing is performed. It cannot be both ways. The two periods are not interchangeable. Kawakami never teaches or suggests that the three periods in Fig. 18 correspond to a data writing/erasing process within one time frame. A proper reading of the reference as a whole does not support the Examiner's interpretation of Fig. 18.

A simple comparison of Figs. 6-8 of Kawakami with Figs. 17-18 shows that the period between peaks of the driving waveform in the ON period of Fig. 18 matches the period between scanning operations shown in Figs. 6-7 (represented by combination of T_1 and T_2 , or a combination of T_3 and T_4). In other words, Fig. 18 (and Fig. 17 as well) illustrates not just one frame time, but instead multiple frame times. Kawakami describes, at col. 11, line 45, that the falling time of the light intensity in Fig. 17 is "several seconds." Kawakami even teaches that the reduced falling time shown in Fig. 18 is still several tenths of a second. (Col. 11, lines 52-55). One skilled in the art would be well aware that either time period described by Kawakami would encompass more than one frame time, as defined by the present invention. Accordingly, the three time periods cited by the Examiner in Kawakami do not correspond to the three periods within one frame time of the present

invention, and Kawakami even teaches away from the assertion that all three periods in the reference are accomplished within one frame time. The outstanding rejection is therefore further traversed for at least these reasons.

The rejection is further traversed because it would not be obvious to combine the two references as proposed by the Examiner. Kawakami merely teaches a matrix type display panel that includes a dye added to the liquid crystal, and that has a CLEAR period in which a zero voltage is applied before the ON period or the OFF period to reduce a response time required for the liquid crystal to attain an ON state or an OFF state. Miyazawa merely teaches to use a TFT panel to realize a time-shared color liquid crystal display with no color filter. Although the Examiner asserts that the two references can be combined to reach the present invention, the Examiner has not cited to anywhere within the two references that they should be combined. Section 2143.01 of the MPEP expressly states that the mere fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness. The affirmative teaching or suggestion to make the proposed combination must also appear within the references. In the present case, however, the Examiner has cited to not such affirmative teaching or suggestion.

Applicants submit that no such affirmative teaching or suggestion can be found within the references, because neither reference, and Kawakami in particular, addresses the same problem solved by the present invention, or realizes all of the advantages of the present invention. In maintaining a rejection based on obviousness, the Examiner is to consider the problems faced and solved by the present inventors, particularly when these problems were

not addressed in the prior art. Moreover, advantages realized by the present invention, but not realized by either prior art reference alone or in combination, can be sufficient to defeat even a *prima facie* case of obviousness.

The present Specification describes how problems related to blurred images peculiar to moving pictures on a liquid crystal display are minimized. Kawakami does not contemplate this problem. Kawakami instead only addresses issues related to flicker, or the limitations on the number of the picture elements that can be provided in the display. (See col. 1, lines 61-67; col. 2, lines 24-27). One skilled in the art would understand that, at the time of Kawakami's invention, limitations and/or low quality of liquid crystal displays for moving images were well known. The Examiner has provided no evidence in the record that Kawakami contemplated an application for moving images, such as DVD movies, or that blurring was even a problem associated with the display of such moving images on a liquid crystal panel. The Examiner has also not cited to any teaching or suggestion within Miyazawa that a mere inclusion of an active matrix panel, into Kawakami's device as proposed by the Examiner, would address or solve this problem.

In contrast, the present invention addresses and solves these problems at least in part by the three recited sub-periods of the one frame time of the display. Blurring and deterioration of a moving image on a liquid crystal display is caused by a continuous display with the same pixels (typically in a held state) during an entire time period of one frame. Applicants note that Kawakami recommended such holding states, which is further evidence of non-obviousness. The present invention though, may advantageously reduce the holding

time in one frame and execute a displayed image in only part of one frame time, thereby reducing the display time and improving the quality of a moving image. Kawakami addresses neither this problem, nor this solution to the problem. The Examiner has simply not cited to any teaching or suggestion within either prior art reference that would direct one of skill in the art to the concept of the present invention. For at least these additional reasons, the present invention cannot be obvious in light of the two cited prior art references, and the rejection should be further withdrawn.

Lastly, Applicants point out to the Examiner that Figs. 17 and 18 of Kawakami do not address the writing and erasing of image information to a display element, but instead are shown to illustrate only the relative intensity of transmitted light from the device. One skilled in the art is aware that the displayed image information is not necessarily related to the intensity of transmitted light. Some liquid crystal devices are known to operate by light reflection, and others with the use of backlights. Page 19, lines 4-5 of the present Specification describes, for example, that light transmittance from a backlight may be kept “ON” for writing and erasing of data. Page 20, lines 2-11, as an alternative example, describes that the lighting pattern of a backlight can be turned on and off to correspond to subframes within the frame period. In other words, the relative intensity of transmitted light from a backlight turned “OFF” or “ON” is not necessarily related to the three recited frame periods (data writing, data erasing, period where neither is performed) of the present invention. Accordingly, for at least these reasons as well, the rejection is again traversed.

For all of the foregoing reasons, Applicants submit that this Application, including claims 11-14, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By



Josh C. Snider
Registration No. 47,954

Customer No. 24978

September 27, 2005

300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
Telephone: (312) 360-0080
Facsimile: (312) 360-9315

P:\DOCS\2206\65770\9J7014.DOC